# Unit 2 Higher

# Last-minute Revision List

This is a list of the topics you might want to look at over the final few days before the exam.

**THIS IS A SUGGESTION OF WHAT MIGHT COME IN UNIT 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Topic** | **Subtopics** | | |
|  | PERCENTAGES | Increase/decrease | Compound interest | |
|  | RATIO | Sharing quantities |  |  |
|  | QUADRATIC EQUATIONS | Using the formula | Completing the square | |
|  | SIMULTANEOUS EQUATIONS | 2 linear equations | 1 line  1 quadratic | 1 line  1 circle |
|  | PROPORTION | Direct: y ∝ x  (y = *k*x) | Inverse: y ∝  (y = ) |  |
|  | INEQUALITIES | Number lines | Solving | Graphs |
|  | STRAIGHT LINES | Parallel lines | Perpendicular lines | |
|  | ANGLES | Parallel lines | Interior/exterior in polygons | |
|  | PYTHAGORAS THEOREM | 2-dimensions | 3-dimensions |  |
|  | TRIGONOMETRY | 2-dimensions | 3-dimensions |  |
|  | SINE/COSINE RULE | Angles and sides | Area of a triangle  (Area = ) | |
|  | SIMILAR SHAPES | Length/Area/  Volume | Intersecting chords | |
|  | CIRCLES | Circumference | Area |  |
|  | 3D VOLUME | Cylinders | Cones/spheres |  |
|  | EXACT ANSWERS | Surds | Answers in pi |  |

**ANSWERS ON THE WIKISPACE**

**1.** 45.00 + 45.00 ×  =  
45.00 + 6.75 = 51.75 3

**Percentages**

[3]

**2.** £33.84 2

 × 94

[2]

**3.** 84:16 or 42:8  
21:4 2

[2]

**4.** 71.55 3

SI = 530 × 4. 5 ×

[3]

**5.** 4 2

5469.78 ÷ 1.05 ÷ 1.05 ÷ 1.05…  
**or** 4500 × 1.05 × 1.05……

[2]

**6.** 2000 × (1.055)3  
Interest = 2348.48 – 2000  
= 348.48 3

[3]

**7.** eg 0.918 = 0.4702... 3  
= 8

[3]

**8.** (100% – 25%) × Normal 3

Price = £ 12.75

Normal Price = £ 12.75 ÷ 0.75

= £17

[3]

**9.** 275 3



[3]

**Ratio**

**1.** 78.75 2

126 ÷ (5 + 3)

[2]

**2.** 273 2

[2]

**3.** oe 4

 = 30  
Ann = 90, Bob = 150  
Colin =  = 60

[4]

**4.** 36 ÷ 9  
1 part = 4  
8 : 12 : 16

A 8  
B 12  
C 16 3

[3]

**5.** £48 3

  
“12”  4

[3]

**6.** 8 × 502  
20 000cm2 2

[2]

**Quadratics**

**1.**   
  
*x* = 6.2749 or *x* = –1.2749  
6.27 or –1.27 3

[3]

**2.** 1.193, 4.193 3

  


[3]

**3.** (a) 1.30  
-2.30 3

*x*2 + *x* – 3 = 0  
  
OR  


(b) Eg *x* = 10,  
*y* =11  11  
Or *x* = 11,  
*y* = 11  13 2

[5]

**4.** (a) Circle centre *O* Line 3

(b) *x* = 6.4,  
*y* = 7.7  
*x* = – 4.6,  
*y* = – 8.9 2

(c) *q* = 9 2

(*x* + 3)2 – 9

(d) 3, 10 3

(*x* + 3)2 – 9 + (*y* – 2)2 – 4 – 87 = 0  
(*x* + 3)2 + (*y* – 2)2 = 100

[10]

**Simultaneous Equations**

**1.** *x* = 4, *y* =  1 4

4*x*  6*y* = 22  
15*x* + 6*y* = 54  
19*x* = 76

[4]

***2.*** *x* = 6, *y* = – 5 4

4*x* + 6*y* = – 6 6*x* + 9*y* = – 9  
9*x* – 6*y* = 84 6*x* – 4*y* = 56  
13*x* = 78, *x* = 6 13*y* = – 65*y* = – 5  
12 + 3*y* = – 3 6*x* – 45 = – 9  
3*y* = – 15 6*x* = 36

[4]

***3.*** *x*2 + 6*x* + 9  
*x* *=* 2 and *y* *=* 5  
or  
*x* *=* – 5 and *y* *=* – 2 7

(*x* + 3)2 + *x*2 *=* 29  
*x*2 + 6*x* + 9 + *x*2 *=* 29  
2*x*2 + 6*x* + 9 *=* 29  
2*x*2 + 6*x* – 20 = 0  
2(*x* – 2)(*x* + 5) = 0

**4.** *x =* 2 or 6  
*y* = 6 or 2 7

*x* = 4 – *y*  
(4 – *y*)2 + *y*2 = 40  
2*y*2 – 8*y* – 24 = 0  
(*y* – 6)(*y* + 2)

[7]

**Direct and Inverse Proportion**

**1.**   
  
  


= 1406.25 4

[4]

**2.** *f* = 

*=* 160

256 = 

*k* = 12800

*f =*  3

**3.** *P* =   
*k* = *Pd*2 = 10000 × 0.4² = 1600

when *d* = 0.8, *P* =   
2500 3

[3]

**4.** 50 4

*T* =*kR*2  
*K* = 32 – 1202 = 0. 00222  
*T* = 0.00222  1502

[4]

**5.** (a)  3



(b) 500 1

[4]

**Inequalities**

**1.** (i) *x ≤* 3 3

B1 for x ≤ 3

(ii) Arrow from empty circle

[3]

**2.** 1, 0, 1 2

[2]

**3.** (a) –3, –2, –1, 0, 1 2

(b) 3*x* < –6 2  
*x* < –2

[4]

**4.** (a) –2, –1, 0, 1, 2 2

(b) 4p + *p <* 8 + 7  
*p* < 3 2

[4]

**5.** (a) –1, 0, 1, 2, 3 2

(b) (i) 

(ii) 4 3

[5]

**6.** (i) *x* < 2 3

3*x* < 6

(ii) Clear circle around 2, and solid line leading to left  
of diagram (or up to  5 or arrow)

[3]

**7.** (a) (i) *x* < 2 2

3*x* < 6

(ii) Clear circle around 2, and solid line leading to left  
of diagram up to 5 or arrow

(b) 2, 1, 0, 1 3

[6]

**8.** Region *x* < 3 4  
Region *y* > –2  
Region *y* < *x*

**R** shaded

[4]

**9.** (a) 3

B3 if fully correct  
(B2 for 2 lines and appropriate shading ft from their lines or for 3 lines correct)  
(B1 for 1 line correct)

(b) (2, 2), (2, 3), (2, 4), (3, 3) 2

)

**1.** oe

**Straight lines and parallel and perpendicular**

*y* =  2

[2]

**2.** (a) –4 = 2*a* – 3  
=  2

(b) *y =* 2*x* + *c*4 = 2 × 3 + *c,* c = –2  
*y* = 2*x* – 2 3

[5]

**3.** *y* = 2*x* – 4 3

**L2** *y*= 2*x* + *c*  
C = 2 – 2  3 = – 4

[3]

**4.**  3

  


[3]

**Angles in parallel lines and polygons**

**1.** 60º 2

360 ÷ 6 = 60º

[2]

**2.** 40 2

360 ÷ 9 = 40

[2]

**3.** 360 ÷ 40 = 9 2

[2]

**4.** 64 1

[1]

**5.** (a) (i) 48 2

(ii) Alternate angles

(b) (i) 30 2

(ii) Corresponding angles

[4]

**Pythagoras theorem**

**1.** 3.6 3

1.72 + 3.22 = 2.89 + 10.24 = 13.13  


**2.** 92 – 62  
81 – 36 = 45  
  
6.705 – 6.71 3

**3.** 13.7cm 3

172 – 102 = 189

**4.** 32 + 42 + 122 = 169 3

169 = 13

**5.** (a) 9.11 2

32 + 52 + 72 = 83

(b) 19.2 2

Tan *GAC* = 3 – (52+ 72)

**Trigonometry**

(Total 4 marks)

**1.** 6.64 3

8.5 × tan38 = 8.5 × 0.7813  
  
  


**2.** cos*x* =  = 0.8297... 3  
33.9

**3.** *BD* = 3 × tan35 = 2.101

= sin *BAD*

= 13.5 4

***4.*** *DC2* = 52+82; *DC* = 

*DB2* = 52 *+* 10*2 ; DB =* 

*BC2* =82 + 102; *BC* = 

cos *CDB* = = 0.23702

= 76.3 6

**Sine and Cosine rules including Area of a triangle**

**1.** 53.8 3

Area *ABC* = ½ × 14 × 8 × sin106 (= 53.8)

[3]

**2.** (a) 14.4 cm 3

(152 + 8 – 2.15.8.cos70)

(b) 78.5 2

Sin A =   
Cos A = 

[5]

**3.** (a) eg  3  
 or –0.2702...  
105.7

(b) eg  × 4.2 × 5.3 × sin“l05.67°” 3  
10.7

[6]

**4.** 18.3 6

0.5 × 3.2 × 8.4 × Sin *B* = 10  
sin *B* = 0.74404…  
 48.077  
*AC*2 = 3.22 + 8.42 – 2 × 3.2 × 8.4 × cos *B  
AC*2 = 44.8815…..  
*AC* = 6.69 (936…)  
Perimeter = 18.3

Use the altitude *AD,* 

  
*DC =* 6.261



Perimeter = 18.3

**Similar shapes including length, area, and volume scale factors**

**1.** (a)  2  
12

(b)  2  
5

**2.** 270 3

Sf =   
Vol = 

**3.**  or 4.096 4

 or 1.6  
“1.6”2 or 2.56  
= 3800

**4.** (a)  or 4  
 or 2 = 8 3

(b) 12 × 23 = 96 2

[5]

**5.** (a) 12 3

 or 9  
 or 3

(b) 2700** 2

33 or 27 or 2700

)

**Circles**

**1.** (a) 3 : 1 1

(b) 7.7 2

** × 2.45

**2.** 88.4cm2 3



[3]

**3.** 2 × 3.14 × 10 = 62.8(62.8 – 62.9)  
62.8 ÷ 2 = 31.4 (31.4 – 31.5)  
31.4 + 20 = 51.4 – 51.5 3

**4.** *π* × 62

122 – *π* × 62

30.9 4

**5.**  × *π* × 132 = 0.416 × 530.9291585 = 221.22…221 2

[2]

**6.**  ×2 ×  × 12 = 4 3

[3]

**7.** (a) or  
  
21.7 – 21.8 3

(b) Area Sector = π(10.4)2 ÷ 3 = 113.26488  
Area Triangle = (10.4)(10.4)sin120°  
= 46.8346  
Area segment = 66.43 ....  
66.4 4

**3D Volume**

**1.** 42 cm³ 4

½ × 4 × 3 × 7

**2.** 150 cm3 3

15 × 10

**3.** 754 cm3 3

*π* n × 42 × 15 = 753.6

**4.** (a) 502  503 cm3 2

*V* = **  42  10

(b)   13 3

*P*2 = 102 + 82  
*P* = 

**5.** 65** 3

*l*2 = 52 + 122  
*l* = 13  
** × 5 × “13”

**6.** (a)   
  
  
905 3

(b)   
  
4.92 3

**7.** (a)  × π × 52 × 8 = π × 25 × 8 ÷ 3 = 209.4395  
209 – 210 2

(b) Base radius = 216 × 15 = 9  
 360  
Height = √(152 – 92) = 12 4

**Surds**

**1.** (a)  2  
1.258048316

(b) 1.26 1

**2.** (a)   
1.24015 2

(b) 1.24 1

**3.** (a) 7 1

(b)  1

**4.**   
= 3 – 2  
= 1 2

**5.** 3 + 5 2

 × 

**6.**  3

  
= 